



SEQUENCE LISTING

A
<110> Anderson, Christen M.
Clevenger, William

<120> COMPOSITIONS AND METHODS FOR REGULATING
ENDOGENOUS INHIBITOR OF ATP SYNTHASE, INCLUDING
TREATMENT FOR DIABETES

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<141> 2002-02-27

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 Arg Tyr Ile Arg Ser
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<400> 9
 Pro Pro Glu Pro Glu Thr
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<400> 10
 Arg Lys Lys Arg Arg Gln Arg Arg
 1 5

<210> 11
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<400> 11
 aggaagaagc ggagacagag a

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<210> 12
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 <212> DNA
 <213> Rattus norvegicus

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 caaacccgag gcttcggctc ggactcgtcg gagagcatgg attcggggcgc tggctccatc 120

cgagaagctg gtggggcctt cgggaaacga gagaaggctg aagaggatcg gtacttccga 180
 gagaagacta gagagcagct ggctgccttg aagaagcacc atgaagatga gattgaccac 240
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 tacctaaaaga atagtgaagca ttga 324

<210> 13
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 <212> PRT
 <213> Rattus norvegicus

<400> 13
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
 1 5 10 15
 Met Arg Val Leu Gln Thr Arg Gly Phe Gly Ser Asp Ser Ser Glu Ser
 20 25 30
 Met Asp Ser Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly
 35 40 45
 Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg
 50 55 60
 Glu Gln Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His
 65 70 75 80
 His Ser Lys Glu Ile Glu Arg Leu Gln Lys Gln Ile Glu Arg His Lys
 85 90 95
 Lys Lys Ile Lys Tyr Leu Lys Asn Ser Glu His
 100 105

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<210> 14
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 <213> Rattus norvegicus

<400> 14
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 caaacccgag gcttc 75

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 <212> DNA
 <213> Mus musculus

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 caaattgatc gccataagaa gaagatccaa caactaaaga ataattcattg aatgcgcgca 360
 gtcggtccct cacagagtgg cccgtatcac tccccacgtc tgtagacaca tggctttgaa 420
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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 509

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 <211> 106
 <212> PRT

<213> Mus musculus

<400> 16

Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Phe Gly Val Trp Gly
 1 5 10 15
 Met Lys Val Leu Gln Thr Arg Gly Phe Val Ser Asp Ser Ser Asp Ser
 20 25 30
 Met Asp Thr Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly
 35 40 45
 Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Lys
 50 55 60
 Glu Gln Leu Ala Ala Leu Arg Lys His His Glu Asp Glu Ile Asp His
 65 70 75 80
 His Ser Lys Glu Ile Glu Arg Leu Gln Lys Gln Ile Asp Arg His Lys
 85 90 95
 Lys Lys Ile Gln Gln Leu Lys Asn Asn His
 100 105

<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 17

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23

<210> 18

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 18

aagtgggctt ttgctcatgt gtc

25

<210> 19

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 19

tgagctcaga tatggcagga agaagcggag acagagagga atggcag

47

<210> 20

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 20

atataagctt tcaatgctca ctattcttta ggta

34

<210> 21

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

<400> 21

agatatggca ggaagaagcg gagacagaga gga

33

<210> 22

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

<400> 22

Arg Tyr Gly Arg Lys Lys Arg Arg Gln Arg Gly
1 5 10

<210> 23

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 23

tgagctcagg atatggcagg aagaagcggg gacagagagg aggctcgg

48

<210> 24

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 24

atataagctt tcaatgctca ctattcttta ggta

34

<210> 25

<211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Polypeptide consisting of amino acids 22-46 of the
 mature form of rat IF1

<400> 25
 Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys
 1 5 10 15
 Thr Arg Glu Gln Leu Ala Ala Leu Lys
 20 25

<210> 26
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Polypeptide consisting of amino acids 42-58 of the
 mature form of rat IF1

<400> 26
 Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His His Ser
 1 5 10 15
 Lys

<210> 27
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 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Cellular transport sequence

<400> 27
 Arg Lys Lys Arg Arg Gln Arg
 1 5

<210> 28
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 <212> PRT
 <213> Rattus norvegicus

<400> 28
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
 1 5 10 15
 Met Arg Val Leu Gln Thr Arg Gly Phe
 20 25

<210> 29
 <211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 29

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
20 25 30
Lys Lys

<210> 30

<211> 20

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<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 30

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr
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<210> 31

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 31

Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu
1 5 10 15
Asp Arg Tyr Phe
20

<210> 32

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 32

Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp
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Arg Tyr Phe Arg
20

<210> 33

<211> 20

<212> PRT

<213> Artificial Sequence

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sequence.

<400> 33

Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg
1 5 10 15
Tyr Phe Arg Glu
20

<210> 34

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 34

Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr
1 5 10 15
Phe Arg Glu Lys
20

<210> 35

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 35

Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe
1 5 10 15

Arg Glu Lys Thr
20

<210> 36
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 36
Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg
1 5 10 15
Glu Lys Thr Arg
20

<210> 37
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 37
Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu
1 5 10 15
Lys Thr Arg Glu
20

<210> 38
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 38
Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys
1 5 10 15
Thr Arg Glu Gln
20

<210> 39
<211> 20

<212> PRT
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<220>

<223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 39

Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr
 1 5 10 15
 Arg Glu Gln Leu
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<210> 40

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
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<400> 40

Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg
 1 5 10 15
 Glu Gln Leu Ala
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<210> 41

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
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<400> 41

Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu
 1 5 10 15
 Gln Leu Ala Ala
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<210> 42

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 42

Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln
 1 5 10 15
 Leu Ala Ala Leu
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<210> 43

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 43

Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu
 1 5 10 15
 Ala Ala Leu Lys
 20

<210> 44

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 44

Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala
 1 5 10 15
 Ala Leu Lys Lys
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<210> 45

<211> 11

<212> PRT

<213> Artificial Sequence

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<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 45

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys
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<210> 46
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 46
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg
 1 5 10

<210> 47
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 47
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu
 1 5 10

<210> 48
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 48
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys
 1 5 10

<210> 49
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 49
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala
 1 5 10 15

<210> 50
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 50
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15

<210> 51
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 51
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 1 5 10 15
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<210> 52
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 52
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp

<210> 53
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 53

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg

<210> 54

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 54

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr
20

<210> 55

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 55

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe
20

<210> 56

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 56

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15

Glu Asp Arg Tyr Phe Arg
20

<210> 57
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 57
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1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu
20

<210> 58
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 58
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys
20

<210> 59
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide fragment derived from rat IF1
sequence.

<400> 59
Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
1 5 10 15
Glu Asp Arg Tyr Phe Arg Glu Lys Thr
20 25

<210> 60
<211> 26

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 60
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg
 20 25

<210> 61
 <211> 27
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 61
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu
 20 25

<210> 62
 <211> 28
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 62
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln
 20 25

<210> 63
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 63

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu
 20 25

<210> 64

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 64

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala
 20 25 30

<210> 65

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence.

<400> 65

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala
 20 25 30

<210> 66

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1 sequence..

<400> 66

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
 20 25 30

<210> 67
 <211> 33
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthetic peptide fragment derived from rat IF1
 sequence.

<400> 67
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu
 1 5 10 15
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu
 20 25 30
 Lys

<210> 68
 <211> 35
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Epitope tag sequence.

<400> 68
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 1 5 10 15
 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
 20 25 30
 Pro Ser Ser
 35

<210> 69
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Organellar targeting sequence

<400> 69
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
 1 5 10 15
 Met Arg Val Leu Gln Thr Arg Gly Phe
 20 25

<210> 70
 <211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Cellular transport sequence

<400> 70

Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly
1 5 10

<210> 71

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein

<400> 71

Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr
1 5 10 15
Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp
20 25 30
Pro Ser Ser Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly
35 40 45
Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly
50 55 60
Met Arg Val Leu Gln Thr Arg Gly Phe Ser Ile Arg Glu Ala Gly Gly
65 70 75 80
Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu
85 90 95
Lys Thr Arg Glu Gln Leu Ala Ala Leu Lys Lys
100 105

<210> 72

<211> 321

<212> DNA

<213> Artificial Sequence

<220>

<223> Nucleotide that codes for fusion protein.

<400> 72

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aagcggagac agagaaggag aggtatggca ggctcggcgt tggcgggttcg ggctcggctc 180
ggtgtctggg gtaggagggt cctgcaaacc cgaggcttct ccatccgaga agctggtggg 240
gccttcggga aacgagagaa ggctgaagag gatcgggtact tccgagagaa gactagagag 300
cagctgggctg ccttgaagaa g 321

<210> 73

<211> 79

<212> PRT

<213> Rattus norvegicus

<400> 73

Gly Ser Asp Ser Ser Glu Ser Met Asp Ser Gly Ala Gly Ser Ile Arg
 1 5 10 15
 Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg
 20 25 30
 Tyr Phe Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu Lys Lys His His
 35 40 45
 Glu Asp Glu Ile Asp His His Ser Lys Glu Ile Glu Arg Leu Gln Lys
 50 55 60
 Gln Ile Glu Arg Lys Lys Ile Lys Tyr Leu Lys Asn Ser Glu His
 65 70 75
